



UNITED STATES NAVY

# MEDICAL NEWS LETTER

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Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

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The issuance of this publication approved by the Secretary of the Navy on 28 June 1961.



# FROSTBITE: EXPERIENCE WITH RAPID REWARMING AND ULTRASONIC THERAPY (continued)

William J. Mills Jr, Robert Whaley, and Winthrop Fish, Anchorage, Alaska. ALASKA MEDICINE, Part II, \* Vol. 2, No. 4, December 1960.

In Part I of these articles from the journal, ALASKA MEDICINE, March 1960, the general methods of treatment were described for those cases directly under the authors' care. The background of knowledge concerning cold injury was briefly reviewed. In this portion of the paper, experience with fifty-one cases of frostbite is described. Of these, forty-one were treated directly by the senior author (WM) as either the attending or consulting physician. The remaining cases were drawn from the file of the Alaska Native Service Hospital or from Providence Hospital, Anchorage.

The majority of those patients not directly treated were followed by one of the authors as an interested observer. Only three of the total series were not seen by at least one of the authors. Hospital records were very carefully studied and any pertinent information was abstracted from them. The patients themselves were, if possible, interviewed at length concerning the cause of their exposure, the character of their exposure, and resulting symptomatology. All data which were considered of any possible value in the epidemiologic or clinical study of this injury were compiled. Only that information considered to be of general interest is presented (Table I). Six cases of minimal to severe cold injury to the ears were not included in this series.

## Group Characteristics

Table II outlines the racial and age distribution of the affected group. The majority of patients are, as one might expect, in the 15 to 45 years age range.

Table II  
Age and Race Distribution

| Age   | Caucasian |        | Native |        |
|-------|-----------|--------|--------|--------|
|       | Male      | Female | Male   | Female |
| 0-15  | 1         | 0      | 1      | 1      |
| 15-30 | 9         | 0      | 6      | 5      |
| 30-45 | 9         | 1      | 5      | 2      |
| 45-60 | 5         | 1      | 4      | 0      |
| 61-   | 1         | 0      | 0      | 0      |

It is of interest that Caucasian and Native patients are almost comparable in number. (Throughout this paper, Native will be understood to refer to those of Aleut, Eskimo, or Indian extraction.) The appearance of only two cases of



frostbite in Caucasian women is understandable in view of the infrequent exposure of this group.

In Table III the Caucasian and Native groups are listed according to cause of injury. The classification of "insidious" includes those cases of frostbite occurring inadvertently with the subject unaware of the severity of the cold exposure. This is as opposed to that group where exposure was appreciated but could not be avoided. A separate classification is given to include that group exposed as a result of alcoholic intoxication. They represent an individually large class and apparently a serious health hazard in this state.

Table III  
Cause of Injury by Race

| Cause of Exposure            | Caucasian | Native | Total |
|------------------------------|-----------|--------|-------|
| 1. Insidious                 | 1         | 3      | 4     |
| 2. Involuntary (accidental)  | 18        | 14     | 32    |
| a. Aircraft accident         | 3         | 2      |       |
| b. Land vehicle breakdown    | 3         | 0      |       |
| c. Hunting or trapping       | 5         | 4      |       |
| d. Injury at work            | 1         | 0      |       |
| e. Assault                   | 2         | 2      |       |
| f. Runaway dog team          | 0         | 3      |       |
| g. Fell through ice in river | 0         | 3      |       |
| h. Other                     | 4         | 0      |       |
| 3. Alcoholic stupor          | 8         | 7      | 15    |
| a. With assault              |           | 3      |       |
| Total                        | 27        | 24     | 51    |

Table III demonstrates some expected findings. These include a preponderance of Caucasian injuries in those exposed through truck or automobile breakdown or accident, and of Native injuries from runaway dog teams or from penetration of ice while crossing rivers or lakes covered by overflow. A number of unexpected findings occur, however, including the majority of insidious injuries revealed in Natives. This is somewhat contrary to the common conception that these people are highly experienced and therefore less liable to sustain cold injury of this type. The assault group included those rendered helpless or unconscious by attack. Most of these were female, and most reported flight after the assault in sub-zero weather, inadequately clothed, with average exposure of from 30 minutes to 2 hours prior to obtaining aid or re-warming.

In the above, exposure for most patients was at temperatures well below  $-20^{\circ}\text{F}$  or, in a few cases, just above zero accompanied by high winds.

#### Classification of Injury

In attempting to evaluate the end results of the cold injury, a scheme of classification in roughly progressive degrees of severity was chosen as outlined



in Table IV. Generally, the degree of restoration of function of the injured extremity should be considered the most important measure of result. However, although many of these patients have been followed for several years subsequent to their injury, the most recent sustained injury only one month prior to December 1960.

Table IV  
Classification of Degree of Ultimate Injury

---

|  |
|--|
| A—No recorded or demonstrated residual                                   |
| B—Dysesthesia  |
| Intrinsic muscle atrophy   |
| Skin loss requiring replacement skin cover                               |
| Limitation of joint motion greater than 25%                              |
| C—Phalangeal amputation, any level, three or less                        |
| D—Phalangeal amputation, any level, four or more                         |
| Complete phalangeal loss at metacarpal or metatarsal—phalangeal junction |
| Major amputation of the extremity  |

---

It is not considered possible by the authors to completely assess functional results since they were not able to see all of these patients for a proper follow-up. Too, the results were, in some cases, taken from descriptions rendered by other physicians; these patients were not completely evaluated in terms of the authors' classification. To be objective in measuring severity of injury, the classification is based entirely upon anatomical grounds.

The A Group includes only those patients without recorded or demonstrable residual. In those cases treated by the authors, no case of significant cold injury was found which did not have some residual, even though minor. Therefore, this group contains patients mainly treated by others. Group B contains those patients with any dysesthesia, or sensory disturbance, including hyperalgesia, hypesthesia, paresthesias, or causalgia. Also grouped in this B category are those cases with intrinsic muscle atrophy, skin loss requiring replacement, or limitation of joint motion greater than 25 % of the normal range.

Table V  
Severity of Injury by Race

---

|           | A | B  | C | D |
|-----------|---|----|---|---|
| Caucasian | 2 | 14 | 6 | 5 |
| Native    | 2 | 12 | 6 | 4 |

---

Group C includes those patients who usually demonstrated all of the above, but who sustained anatomical loss not exceeding three phalanges.

Group D, on the other hand, consists of those who had tissue loss greater than Group C and, in general, represents those whose amputations are significantly handicapping. In the majority of cases, the Group D result amounted to the loss of a foot or lower leg, often bilateral (or separation at the metatarsal-phalangeal junction). Throughout the paper, these specific groups of injury are used in evaluating the results of diverse methods of thawing and treatment. They represent the best measure of the treatment method and the subsequent end result of the injury.

## Results

In Table V, the net results in accordance with the above classification, are tabulated for Caucasians and Natives. There is no significant difference between these two groups. It is seen that there are only four patients in Group A. These, as noted above, were not in the authors treatment series. Such patients so described by others, who were reexamined by the authors were invariably found to have some residual limitation of motion or neurovascular loss. These were classified then in Group B. The authors conclude that if actual tissue freezing occurs, even though the injury is relatively superficial, some demonstrable objective or subjective residual will persist indefinitely.

Table VI  
Degree of Injury vs Intoxication

|                 | A | B  | C | D | Total |
|-----------------|---|----|---|---|-------|
| Intoxicated     | 1 | 8  | 4 | 3 | 16    |
| Not intoxicated | 3 | 18 | 8 | 6 | 35    |

Because of the many loose statements and multiple theories regarding the effect of alcohol on frostbite, before and after exposure, Table VI has been included. There appears no significant difference in the distribution of intoxicated or nonintoxicated patients when classified by degree of injury. It is obvious from individual case histories that many of those who were intoxicated and sustained frostbite presumably would not have received this injury had they been aware of their environment and able to care for themselves.

In Table VII the subjects are classified according to anatomical areas of injury, race, and final result. It is seen that the feet are involved more often than other sites. It is apparent from individual cases that involvement of the feet often occurs first followed by injury to the hands. This is the usual occurrence in those wearing the standard type of winter clothing who sustain severe exposure with body cooling.

The preponderance of Caucasian subjects with involvement of both hands only is interesting. This appeared as a result either of accidental loss of the hand covering due to wind, of loss in the course of the accident preceding the cold trauma, or a lack of proper hand cover prior to cold injury.



It is of further interest that the majority of major amputations of those subjects falling in Group D sustained foot injuries. Cold injury to the hand rarely produced more than isolated phalangeal loss (Caucasian-Native racial variation, particularly regarding hand injuries, will be discussed in Part III.)

Table VII  
Anatomical Site of Injury

| Area of Injury | Cauc | Nat | T'tl | A | B  | C | D |
|----------------|------|-----|------|---|----|---|---|
| H. F. Bilat.   | 3    | 5   | 8    | 0 | 3  | 5 | 0 |
| H. Bilat.      | 3    | 1   | 6    | 0 | 3  | 2 | 1 |
| F. Bilat.      | 16   | 11  | 27   | 0 | 18 | 4 | 6 |
| H. Unilat.     | 1    | 3   | 4    | 2 | 2  | 0 | 0 |
| F. Unilat.     | 1    | 2   | 3    | 2 | 0  | 0 | 1 |
| OTHER          | 1    | 2   | 3    | 0 | 1  | 1 | 1 |

\* These studies were aided by Contract Nonr-3183 (00) (NR 105-249) between the Office of Naval Research, Department of the Navy, and William J. Mills Jr, M. D.

(Part II of this series of articles on Frostbite will continue in the next Medical News Letter with a discussion of the Variation of Result by Method of Treatment.)

\* \* \* \* \*

#### Vena Cavagraphy in the Management of Malignancy\*

LCDR B. P. Sammons MC USN, LT R. R. Lund MC USN, LT W. O. Pischnotte MC USN, Pensacola, Fla. Amer J Roentgenol 86:718, October 1961.

The extent and location of malignant disease are two of the most important factors influencing the choice between curative and palliative therapy. Visualization of the superior and inferior venae cavae can show pathology in the mediastinum and the retroperitoneal space that is missed by the more commonly employed roentgenographic procedures. These great veins which are readily deformed by adjacent pathology are easily and safely visualized with contrast material. A simplified technic of vena cavagraphy is illustrated and representative cases presented from over 400 studies.

Cavagrams are of particular value in cases of lymphoma where the clinical staging is of the utmost importance in determining initial and subsequent therapy. Accurate staging is not possible without adequate evaluation of the mediastinal and retroperitoneal lymph nodes. Occult malignancies in the retroperitoneal area, suspected clinically, can often be revealed by inferior vena cavagraphy because of the large number of lymphatic nodes



surrounding this great vein. Pathologic enlargement of the right adrenal gland, right kidney, liver, and head of the pancreas can be detected by this technic. Evaluation of therapeutic results in retroperitoneal disease and determination of the need for further therapy are greatly aided by this objective method of evaluation.

\* From the Departments of Radiology, U.S. Naval Hospital, Pensacola, Fla., and U.S. Naval Hospital, St. Albans, Long Island, N. Y.

### Modern Trends in Psychiatric Therapy

CAPT J. F. McMullin MC USN, formerly Chief, Dept of Neuropsychiatry, Tripler U.S. Army Hospital, Honolulu, Hawaii; now commanding U.S. Naval Hospital, Key West, Fla. Hawaii Med J 20:435-441, May - June 1961. Presented before first annual Nurses Assn Convention, Honolulu, September 1959.

At the present time, the most pressing problem in the field of psychiatric therapy remains, as for many previous years, the enormous patient load, both inpatient and outpatient. We have become too familiar with the frequently cited statistics that out of one million and a half hospital beds in the United States, about one-half are occupied by the mentally ill. It is universally agreed that mental disorders constitute the most important public health problem. Besides the usual clinical problems, the field of psychiatry seems to have taken as its responsibility that ever prevalent disorder, alcoholism. Add crime to this, and we enlarge the scope still further. Finally, there seems to be a trend toward the inclusion of just plain unhappiness as a disorder meriting psychiatric treatment.

#### Obstacles to Psychiatric Treatment

We must recognize the significant advances in psychiatric therapy that are, in a sense, products which have come about in recent years. One outstanding trend at present is the concern with how best to accomplish delivery of the "product" to the patient who needs it now. There are no simple answers to this, but such considerations lead to very pertinent questions as to some of the reasons patients do not receive psychiatric treatment. Among these, the following would be listed: (a) limited availability of treatment facilities, such as clinics, hospitals, or private practitioners; (b) persistence of a sense of stigma and other unhealthy public attitudes towards psychiatric patients; (c) shortage of personnel; (d) cost of care, especially private care; and (e) non-inclusion of psychiatric treatment in health plans like Blue Cross and Blue Shield.

#### Trend Away from Hospitals

Hospital care of psychiatric patients has traditionally been centered in state mental hospitals for the most part. Recent years have witnessed quite a



revolutionary change in our thinking about public mental hospitals. The direction of this trend seems to be away from such hospitals and back towards more local community resources. Many leaders in psychiatry believe that the chronicity in mental illness is more a result of the social structure in psychiatric hospitals than of the illness itself, so that we now recognize the need to modify the setting and mode of care and treatment. Other leaders in American psychiatry have almost condemned the conventional mental hospital to oblivion, but widespread acceptance of the open door program and the recent developments of research units in mental hospitals are but two examples of the changing scene. One is repeatedly struck by the changing atmosphere of the mental hospital from that of a restrictive custodial institution to one of a rehabilitation center to which patients come voluntarily for help.

One of the most hopeful trends is the recent reporting of declines in patient census in more than a few states. It is a fact that more patients are being discharged or sent on trial visits or to outpatient clinics. This is a by-product of recognition of the need to shorten the inpatient phase of treatment. Of course, it is the application of modern methods of treatment that has made this possible.

#### Advantages of Outpatient Care

It has been estimated that fully one-fourth of all psychotic patients in this country never enter a hospital. Many are able to maintain a practical adaptation to a fortuitously well protected home and job situation. Many more psychotic people would be able to continue in the community with the help of outpatient care. By keeping such people at work supporting their dependents, providing for the education of their children, and in other ways contributing to family life, a destructive psycho-social trend can be reversed.

Modern programs of outpatient aftercare tend to liberalize the discharge policy of a hospital, making it possible to send patients home at an earlier date and keep them in remission for much longer periods of time. When outpatient facilities are available, popular prejudices tend to decrease and people apply for treatment early in the course of mental illness at a time when the prognosis is better. These outpatient clinics are helping to overcome the isolation of the mental hospital from the surrounding community; as a result, better liaison is maintained with the medical practitioners in the community.

#### The National Mental Health Act

In view of the aforementioned facts, enactment of the National Mental Health Act in 1946 represented a particularly wise and far-sighted contribution to the mental health of the nation. Over 500 new clinics have so far been established in the United States with funds available through this program. The intention is to provide the means for starting new clinics or for expanding old ones. Once the new facilities are well established, Federal funds are withdrawn and made similarly available to other installations.

## Day Hospitals

There is an increasing trend away from the restrictions of full-time hospital care, and the newest development along those lines is that of day hospitals. Dr. Ewen Cameron first conceived this when he came to realize that psychiatric hospitals were vastly different from general hospitals in that mental patients do not go to bed as part of their treatment. The average mental patient does not go to the hospital to get well, but only to get well enough to go home where treatment continues. We are apt to take over the idea from general hospitals that a hospital is a place where patients and only patients are treated. Actually, we are aware that the patient is only part of the problem; his whole setting and family unit must be considered.

In this setting, the patient comes to the hospital from 9:00 a.m. to 5:00 p.m., and throughout his stay remains in touch with his family and community. The day hospital prevents the retreat of the patient into the hospital and escape into a private room. Day hospitals have been increasing; they report that their day care units operate at one-fourth to one-third of full hospitalization costs.

The night hospital is somewhat the counterpart of the day hospital and provides a part-time therapeutic milieu for patients who can be employed during the day, either full or part-time. They participate in the evening program and have the advantage of being in the group. In actual practice, it is found that night patients are closer to being outside the hospital and on their own than day patients are. Another innovation in recent years has been the establishment of night clinics; the Veterans Administration has pioneered in this approach. A few communities are fortunate enough to have child guidance clinics where night facilities make it possible also for fathers to enter the treatment situation.

## Aftercare

Inasmuch as most relapses and returns to mental hospitals occur within the first 3 months after discharge, it is the plan of the aftercare clinic to give support of maximum intensity during this period, tapering off thereafter as the patient's condition permits.

In psychiatry, gone is the day when private practice psychiatrists confined their efforts to those who, among all their patients, perhaps needed them the least. Today, a good half of the practice of any general psychiatrist is made up of people so seriously disturbed that short-term hospitalization, if not mandatory, is certainly desirable.

## Family Care of Patients

While on the subject of care of the mental patient outside the hospital, a strong trend is noted toward the use of foster home placement for such adult patients. This system had its start in Belgium, in the town of Gheel, where among some



25,000 people, there are about 2600 patients in family care, or about one in every 10 persons. This type of care is designed not only for the convalescent, but also for the chronic patient in whom a permanent emotional disability is expected.

Family care is a major part of total treatment in some European countries. In Norway, as an example, 39% of the committed mentally ill patients are in private family care under supervision of a mental hospital of the state. In the United States, an increasing number of the states, and the Federal Government as well, are using family care for patients. The Veterans Administration, in 1957, placed 730 patients in family care but, in 1958, such placements jumped to 1249 for the year.

### Psychopharmacology

With the many new drugs being made available, the therapeutic mood continues eager and enthusiastic. In working with the so-called tranquilizers, we find they have given psychiatry an unexpected byproduct by forcing psychiatrists to improve methods of treatment. These drugs exposed on a large scale the important influence through suggestion of new medicines which may also have powerful pharmacologic properties. The firm establishment of the pharmacologic efficacy of these drugs has required carefully controlled studies. In the literature on psychopharmacology, accounts of soundly planned and executed research have almost entirely displaced the impressionistic reports based on "experience" which once filled the pages of psychiatric journals.

At the present time, clinical trials proceed in abundance on a group of drugs called antidepressives. These seem to fall into two groups. First there is the amine oxidase inhibitor group—the hydrazines such as iproniazid (Marsilid); its successor, Marplan, and a host of similarly acting drugs of varying potency and effectiveness. Second are those of the promazine group, essentially phenothiazines, like imipramine (Tofranil). All these are still in the process of evaluation and we must guard against premature enthusiasm.

What of the other somatic therapies? Insulin treatment has flourished for nearly 20 years, but its hazards, expense, and the failure of its empiricism to withstand critical inspection seem to have all but resulted in its demise in the past 2 years.

Psychosurgery which reached its peak about 10 years ago is nearly abandoned, and only its staunchest advocates see any prospects for its continued use as a therapy in psychiatry.

As for electroconvulsive therapy, the indications for its use have been persistently reevaluated so that it is clearly indicated for at least symptomatic alleviation of certain forms of depression and certain schizophrenic reactions.

### The Therapeutic Community

Perhaps the most exciting development associated with the sociologic approach is the refocus on the concept of the milieu as a therapeutic agent. Social



treatment as it is practiced in the United States today had its rebirth in the past decade or so in England. In viewing some interesting innovations which British psychiatrists have been carrying out in the general area of social psychiatry, emphasis is noted on the open door policy and giving patients increasing responsibilities for the direction of their daily activities. These modifications play important parts in the remarkable change in hospital atmosphere. The surrender of the key by the staff, and the termination of dealing with problems by authoritarian measures, such as seclusion, restraint, and transfer to a disturbed ward, have resulted in different staff-patient attitudes.

In such a setting, problems are now resolved by changes in personal relations between patients and staff. Experience has shown that the unlocking of chronic wards does not result in increased disappearance of patients. However, such a situation demands a well developed program of occupational therapy and activities for several months prior to opening the wards. As to the deteriorated and confused chronic schizophrenics, it might well be that they never would have reached that stage had they spent their hospital life on an open ward, since removal of all contacts with the outer world is very likely a principal cause of their "deterioration."

Perhaps the most intensive and extensive study and description of a therapeutic community in the United States is that by CAPT Harry Wilmer MC USNR (Ret), of a psychiatric ward at the U.S. Naval Hospital, Oakland, Calif. Even though it was a locked admission ward where patients were kept no longer than 10 days and the goal was primarily patient management, their experience serves as a most illuminating example of problems faced, methods of meeting them, and the results obtained through the establishment of therapeutic community concepts.

CAPT Wilmer has pointed out that the basic departure of the therapeutic community concept from traditionally established concepts of the mental hospital is the emphasis that it places upon socio-environmental factors in the patient's hospital experience. In the hospital which operates as a therapeutic community, socialization and the sense of belonging take their place along with psychotherapy. The traditional order of hierarchy is reversed, and the hospital is regarded as the patient's world rather than the doctor's domain. Thus, the traditional staff attitudes and staff-patient relationships are considerably altered. So also are the procedures employed; self-control, dignity, and trust supplant excessive imposed controls, restrictions, regimentation, and tradition-bound rituals.

Evaluation of the efficacy of therapeutic communities will undoubtedly prove to be a difficult task, but already it seems to have demonstrated its value in patient management. It seems probable that therapeutic community care will be of significantly greater value than current standard hospital care. The therapeutic community concept will make a deep imprint in future medical practice.

#### Psychiatric Treatment Under Health Plans

In a discussion of the problem of bringing psychiatric therapy to those who need it, it is pertinent to consider how the modern health insurance plans facilitate



or inhibit access to treatment. More than 70% of Americans and Canadians are now covered by health insurance plans. Often excluded from these benefits is the one group of disorders that disables the largest number of people. Mental illness fills 50% of all hospital beds. Most general practitioners say that a third of their office patients come because of emotional problems. Yet, a charge for treating a disorder correctly labelled psychiatric will usually be turned down by the staff of a prepaid plan. The public's general indifference to this exclusion of coverage can be attributed to the fact that almost no one expects ever to be mentally ill. Efforts continue to be exerted by the American Psychiatric Association to get some adequate form of coverage for psychiatric disorders made a part of insurance and health plans, like Blue Shield and Blue Cross. An increasing number of state plans provide from 15 to 30 days hospital care for such cases, the majority of which are treated in general hospitals or sanatoria—rarely, if ever, in a state institution. More and more union contracts are demanding, and more industrial and business firms are providing for, outpatient as well as inpatient psychiatric care as an added fringe benefit.

According to a recent survey, some 30% of the Blue Cross plans extend benefits for mental cases in general hospitals with the same coverage as is provided for general illness. The remainder extend less or no coverage. As of January 1957, 51 of 80 Blue Cross plans provided some coverage for alcoholism, 54 for drug addiction, and 74 for self-inflicted injuries. Benefits are usually drastically reduced if the emotional illness is treated in a mental institution. Blue Cross coverage has made definite progress when one considers that a decade ago only 5 of the 81 plans extended benefits for mental illness up to 31 days in a general hospital. Much study and effort goes on in search for ways to provide good psychiatric coverage under these plans since all hands realize that a tremendous number of emotional illnesses and neurotic disorders especially are being treated under other diagnoses.

If we look clearly at today's psychiatric picture, we see that people now seek care of a general-hospital standard, at least for their own mentally sick relatives. This explains the popularity of the psychiatric wards in general hospitals. Since governments usually respond to public opinion, they have increased the funds for psychiatric services and research. All this reflects a new attitude towards psychiatry. Many forces have contributed to this change. The war showed the prevalence of mental disorder. Increase in the number of old people has resulted in more senile psychosis. Mental health education of the public by private and public agencies has broadened knowledge of psychiatry and made more people come closer to realizing that they too could become mentally ill.

The modern approach shifts the focus of psychiatry from the large institution toward the community. This new approach requires better facilities. Uncertainties about causes and treatment do not excuse degraded surroundings. Hospital inspection agencies, such as the Joint Commission on the Accreditation of Hospitals and the American Psychiatric Association's Mental Hospital Inspection Service have been quietly performing signal services in the field to

improve the level and quality of care in mental hospitals, public as well as private.

Thus the modern approach to psychiatric therapy rejects the huge chronic hospital with its rate of \$3.00 per diem or less, its stigma, and its locked doors. Instead, the modern approach emphasizes smaller treatment facilities with easier availability, adequate therapy, comprehensive rehabilitation, and above all, good communication between the treatment groups and the community.

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## MISCELLANY

### VOLUNTEERS INVITED FOR OPERATION

#### DEEP FREEZE '63

1962

1963

General Medical officers and Flight Surgeons are needed for Operation DEEP FREEZE 63 which supports the U.S. Antarctic Research Program, a continuation of the International Geophysical Year in the Antarctic.

It is considered that this assignment affords an opportunity for adventuresome volunteers to enter a new and growing field of military medicine; to participate in a unique research program—biologic, medical, and geophysical; and to aid in conquering the world's last frontier.

Selectees will report to the U.S. Naval Construction Battalion Center, Davisville, East Greenwich, R.I., in early summer of 1962 for several months of training in traumatic surgery; emergency dental care; cold weather medicine, hygiene, and sanitation; and polar air, ice, and water safety and survival. Extra training in medical or surgical specialties is provided as desired.

General Medical Officers are prospective Officers-in-Charge of Pole, Byrd, or Hallett Stations, and will receive extra training in naval jurisprudence, communications, administration, supply, and leadership. These are the only billets in the Navy which afford a Medical officer a line-type command.

Because of the installation of the new PM-3A nuclear power reactor at McMurdo NAF, the Flight Surgeon selectee will receive an extra year of training in Nuclear Science for Medical officers at the University of Rochester leading to a Master of Science degree in Radiation Biology.

Upon completion of the special training and orientation period in the fall of 1962, the General Medical Officers will fly from Davisville, R.I. to Antarctica via Honolulu, Canton, Fiji, and New Zealand. Return to CONUS



may be expected by Christmas 1963. All possible consideration will be given to preference for duty assignment upon completion of a tour of duty in Antarctica. Regulars, Reserves, and graduating interns will be considered. Additional information may be obtained by writing the Staff Medical Officer, U.S. Naval Support Force, Antarctica, Bldg. "D", Sixth and Independence Ave., S. W., Washington 25, D. C. Volunteers may notify Bureau of Medicine and Surgery by letter or message as appropriate. (ProfDiv, BuMed)

\* \* \* \* \*

### Navy-Sponsored Cyclotron Pioneers in Brain Tumor Treatment

A powerful 160 million electron volt proton beam generated by a Navy sponsored cyclotron at Harvard University has been used to treat a deep-seated brain tumor, marking the first application of a new technic in treating tumors in a human being.

The pioneering procedure, which utilizes the Bragg peak of the proton beam to produce controlled lesions and was developed through experimentation with animals, was described by Dr. Raymond N. Kjellberg, neurosurgeon at Massachusetts General Hospital, in a paper presented at the Second International Congress of Neurological Surgeons now meeting in Washington. The patient was a 2-year old girl who was diagnosed last March as suffering from a brain tumor that could not be removed by surgery and which was considered to be fatal.

Dr. William H. Sweet, Chief of Neurosurgery at Massachusetts General and Associate Professor of Surgery at Harvard Medical School, and Dr. Kjellberg, Associate in Surgery at Harvard, have been investigating since January 1960 the possibilities of employing a proton beam to treat human brain tumors. In the case of the young girl, the penetrating capability and range of the proton beam generated by the 160 MEV cyclotron at Harvard was considered suited to treating her particular type of tumor. The cyclotron, built with Navy funds, is regularly utilized by Harvard nuclear physicists to bombard atomic nuclei in a study of the interaction of nuclear particles. This work is supported by the Office of Naval Research which authorized the use of the cyclotron for this special purpose.

Following a series of three exposures to the beam spaced 2 weeks apart in May and June 1961, the tumor shrank to 20% of its former size. The child gained 8 pounds from a former weight of 19 pounds, and is now at home where, according to Dr. Kjellberg's report, she "plays happily with other children and has an emotional and motor performance compatible with her age." The only symptom that remains is a mild visual defect.

The final outcome, however, will not be determined until the child has been under observation for some time. There is no previous experience to guide neurosurgeons as to what side effects may develop later, or whether the tumor has been permanently reduced. The child will be X-rayed again in about



4 months to check her progress and to see if there has been further reduction in the size of the tumor.

Nevertheless, Dr. Kjellberg stated in his paper that "the Bragg peak of the proton beam can produce suitable lesions in the brain in a predictable, precise, and discrete way. This method, which circumvents hazards of bleeding or sepsis, has the full range of its applications yet to be defined, but we believe that it may be very broad indeed."

The characteristic of a proton beam accelerated to very high energies by a cyclotron which makes it suitable for treating brain tumors is that the largest concentration of energy is deposited at the end of the range of the beam. This is known as the Bragg peak. The proton beam also differs from X rays and gamma radiation in that the radiation can be controlled so that it does not penetrate beyond the target area. Nuclear particles are accelerated to such high energies by the cyclotron that they penetrate deeply. They deliver the greatest part of their radiation as they slow to a stop in or near the target area—in this case, the brain tumor. Those portions of the brain through which the beam enters thereby receive much less radiation.

One of the hazards of operations to remove brain tumors is the possibility of complications such as infection. The use of a proton beam eliminates the necessity of opening the skull and exposing the brain. Prior to the actual treatment of the young patient, test irradiations were made using a radiosensitive chemical in a wax model of the brain developed by Dr. Majic Postsaid of Massachusetts General, and Instructor in Radiology at Harvard Medical School.

In developing the new technic, Dr. William H. Preston, Director of the Cyclotron Laboratory at Harvard, and Mr. Andreas Koehler, Assistant Director in charge of the operation of the cyclotron, collaborated with the neurosurgeons. Research on the use of the proton beam for intracerebral lesions is supported by the National Institutes of Health.

RADM L. D. Coates, Chief of Naval Research, has stated: "The Navy is pleased to have played a modest role in this first attempt to use this method in treatment of brain tumor. We are naturally delighted at the initial success of the operation, but recognize that a long period of careful evaluation must precede any regular application of this technic. At the same time, this should encourage the application of the cyclotron to biomedical research as well as to bring physicists and biologists into a closer working relationship."

Harvard and Massachusetts General Hospital plan to submit a proposal to the Office of Naval Research and other government agencies to pursue continuing laboratory studies with the cyclotron on a part-time basis to explore further the use of the proton beam in biomedical applications.

The cyclotron was built in the early postwar years at a cost of \$1.5 million with support provided by the Office of Naval Research and the Atomic Energy Commission. The main feature of the cyclotron is its magnet consisting of 641 tons of steel plus 150 tons of coils and conductors. Its over-all dimensions are 15-1/2 ft high, almost 10 ft deep, and 23 ft long. It is encased in a concrete primary shield ranging from 2 to 8 ft thick. (Technical Information Office, Office of Naval Research)



Capillary Tube Acid Applicator for Verrucae

CDR W.H. Woolf MSC USNR. Read at the 49th Annual Meeting of the American Podiatry Association, Miami Beach, Fla., 29 August 1961.

The employment of a capillary tube acid applicator may best be described in the treatment of a plantar verruca: The superficial cornified layers of the verruca are first closely pared off with a scalpel, preferably without the production of bleeding. A standard small glass coagulation capillary tube (75 mm long; 1.0 mm inside diameter) is then employed to apply a strong acid solution to the surface of the lesion. Bichloroacetic acid is the preferred medication. If a large verruca is under treatment, a capillary tube of similar length, but with a larger inside diameter (1.4 mm), may be utilized.

When the tip end of the tiny glass tube is immersed in the bottle of bichloroacetic acid, the solution will rise inside the tube by capillary action to a height of approximately one-half inch.

The tip of the tube is then brought to bear against the surface of the verruca. On contact, a small amount of acid will leave the tube and moisten the surface of the lesion. The capillary tube is repeatedly pressed with a quick motion against the plantar wart. By this pricking action the tissue will be punctured repeatedly. The puncturing will allow penetration of the bichloroacetic acid and cause the resultant destruction of tissue.

A pause of half a minute or so in the procedure is desirable to allow destructive action in the tissues to proceed. After this momentary "wait", resumption of the pricking process will produce further disintegration of the tissue involved.

One or more capillary tube "doses" may be applied at the same office visit depending on the size of the verruca. If the lumen of the tiny applicator becomes clogged during treatment, the tube should be discarded for another capillary applicator.

Following the above procedure, any excess acid solution on the lesion is lightly blotted with a 2" x 2" gauze sponge and the verruca is covered with a small dry dressing—usually a "Band-Aid". The patient is advised to keep the lesion dry for the first day or two. It need not be kept covered after the initial dressing.

The second treatment—paring off the devitalized tissue and reapplying the acid—is given usually about 10 days later. If necessary, further treatment can be given after a similar time interval. For patients over 25 years of age, a shorter time interval between treatments, about 7 days, is preferable.

Generally, after two or three treatments, the patients will state that the verruca is no longer painful. Upon examination the lesion will appear dehydrated and devitalized; the tissue will usually appear dark—even black—in color. The acid is not reapplied at this time and any overlying cornified tissue is not removed. The patient should be scheduled for reexamination in about 3 weeks. If after this interval some wart tissue still remains, the verruca

should be "touched up" again with acid as the occasion demands. Only two to four applications of bichloroacetic acid are usually required to eradicate most of the verrucae treated by this method. Some cases have been cleared after one application.

In cases of multiple verrucae, five or six treatments sometimes have been found necessary. In only a few of hundreds of cases involving patients under the age of 25 years has the method described been unsuccessful. In these instances, and in a larger percentage of unsuccessful cases involving older patients, the method of treatment has been necessarily altered. For these patients, the capillary tube technic employed together with the application of 40 to 60% salicylic acid ointment, has been the therapy preferred. (CDR Woolf is on the Staff of U. S. Naval Dispensary, Navy Department, Washington 25, D. C.)

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#### Myocardial Function in Thermal Burn

LCDR T. W. Merriam Jr MC USNR. Myocardial Function Following Thermal Burn. MR 005. 12-0101. 2. 2, Naval Medical Field Research Laboratory, Camp Lejeune, N. C., September 1961.

Several investigators have suggested that a defect in myocardial function occurs in the dog following severe thermal burn. A study was therefore undertaken in which myocardial contractility was measured before and after burn.

The left ventricular function curve was used as an index of contractility. Ventricular function was measured immediately before, and 30 minutes following, 30% body surface area burn in 25 dogs, and before and after a sham burn in 13 control dogs. It was found that the burn produced a significantly greater impairment of myocardial contractility than did the sham burn. The mechanism by which the burn produced this alteration in contractility was not apparent from this study.

If the results of this study can be applied to burns in man, they indicate that following severe burns, a careful evaluation of the cardiac status of the victim should be carried out. A careful watch for evidence of heart failure should be maintained.

\* \* \* \* \*

#### Medical Officers' Course in Radioisotope Techniques and Nuclear Medicine

| <u>Class Number</u> | <u>Inclusive Dates</u>                    |
|---------------------|---|
| Class #11           | 15 January 1962 through 6 April 1962      |
| Class #12           | 17 September 1962 through 7 December 1962 |

The above scheduled classes will be conducted at the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Md. In view of the limited quota and



shortage of travel funds for attendance at short courses, only those Medical officers who require the course as an integral part of their residency training or as an important factor in the performance of their current assignment can be authorized to attend. Travel and per diem funds will be provided in accordance with budgetary limitations. Officers who cannot be provided with travel orders to attend at Navy expense may be issued Authorization Orders by their Commanding Officers, following confirmation by this Bureau that space is available in each case.

Requests should be forwarded in accordance with BUMED INSTRUCTION 1520.8 at least 6 weeks prior to commencement of the requested course.  
(Training Branch, Professional Division, BuMed)

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#### From the Note Book

Distribution of Hospital Corps Petty Officers. The Bureau of Medicine and Surgery recognizes the requirements for senior petty officers in naval hospitals, station hospitals, dispensaries, and other continental U.S. activities. It is not feasible to bring all CONUS activities up to 100% of their authorized allowance. In manning levels, all CONUS must share the paucity of petty officers. Projected distribution through December 1961 indicates a decline in the number of petty officers available at shore activities due to Fleet Naval Reserve and expiration of enlistment losses, plus the increased immediate buildup in the fleets and Fleet Marine Force.

Currently, fleet independent duty billets must be manned 100%; Bureau controlled "B" billets and instructor billets as near as possible to 100% due to the nature of the billets. Therefore, due to the shortage of senior petty officers some billets ashore must, of necessity, be manned by lower rated personnel. Attention is invited to paragraph 5 of BUMED INSTRUCTION 1510.10A of 2 Feb 1961, which states in part: "It is incumbent upon commanding officers to institute on-the-job training to meet their own requirements when technician billets cannot be filled by distributional commands." It is anticipated that a "leveling off," to some extent, in equal distribution will commence after April 1962, when personnel will be available monthly from the new Seavey segment 3-61.

(Hospital Corps Division, BuMed)

Citizenship Award to Chief Rew. Navy Chief Hospital Corpsman Ray R. Rew, has received the Fiscal Year 1961 Theodore Roosevelt Citizenship Award for "outstanding performance in the enhancement of good citizenship during the 1961 fiscal year." It was presented to him at a Navy Day dinner sponsored by the District of Columbia Council, Navy League of the United States at the Sheraton Park Hotel, Washington, D. C., on 27 October 1961.

The award, sponsored jointly by the District of Columbia Council of the Navy League and the Theodore Roosevelt Committee, is awarded annually to that Navy officer or enlisted man on active duty in the Potomac River Naval



Command who has done most to aid the cause of good community relations by actively participating in local civic affairs, and who best typifies the spirit of citizenship as exhibited by Theodore Roosevelt.

Chief Rew and his wife, Kathleen, have been foster parents since 1955 and have cared for ten children, ranging in age from 6 days to 13 years. They are presently caring for a 19-month old blind child. Chief Rew reads and writes the Braille system of communications which he learned while working at the State School for the Blind, Salem, Oregon, from 1937 to 1939 prior to his entry into the Navy.

A veteran of 19 years service, he is now assigned as Training Assistant in Blood Bank and Clinical Laboratory Procedures at the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Md. He is a Charter Member of the Laytonsville, Md., Lions Club where he serves as Chairman of the Sight Conservation Committee. His committee works closely with the 22 "C" Eye Bank in Washington, D. C. He is also Chairman of the Hospital Committee, Branch 182 of the Fleet Reserve Association.

Chief Rew is married to the former Miss Kathleen Anna Hoffman of New Market, Md. They make their home with their daughter, Marcia, a second-grader at the Washington Grove (Md.) Elementary School, at Box 56, Derwood, Md. (Public Information Office, National Naval Medical Center, Bethesda, Md.)

Tissue Bank Exhibit. The Tissue Bank Department of the U. S. Naval Medical School, National Naval Medical Center, presented an exhibit at the American Association of Blood Banks meeting, Chicago, Ill., 25 - 28 October 1961, entitled "U. S. Navy Tissue Bank—Current Methods and Experimental Approaches to the Future." The exhibit displayed methods of tissue storage currently in use and under investigation, which included freeze-drying, freezing, and nutrient media storage. The exhibit won first prize for interest and information presented.

American Dietetic Association Meeting. LCDR Elizabeth O'Malley MSC USN, U. S. N. H., Bethesda, Md., and LTJG Judith D. Palmer MSC USNR, U. S. N. H., Philadelphia, Pa., represented the Bureau of Medicine and Surgery at the recent annual meeting of the American Dietetic Association held in St. Louis, Mo. Dietitians at their respective activities, these officers also monitored an educational exhibit at the meeting.

LCDR Lucille R. Clark MSC USN, dietitian at the U. S. N. H., San Diego, Calif., was among 16 women recently honored as 1961 "Women of Valor" at the Annual Sisterhood Fete sponsored by the Temple Beth Israel Sisterhood on 11 October 1961. Awards are bestowed on San Diego women in recognition of their services to church and community. LCDR Clark participated in high school career days sponsored by the San Diego Dietetics Association's Health Career Conference and by the San Diego Medical Society Auxiliary, and is active in other community organizations.

Obstetrics-Gynecology Seminar. The Tenth Annual Armed Forces Obstetrics-Gynecology Seminar was held at the U. S. Air Force Hospital Lackland, San Antonio, Texas, 16 - 19 October 1961. The seminar was well attended and the



Navy Medical Corps was represented by 49 Medical officers. Outstanding on the program were two papers presented by Navy Medical officers which developed from the use of the IBM obstetrical coding which was instituted last year and in which all naval hospitals in CONUS participated. CAPT M. W. Rusher MC USN, Chief of OB/GYN at the U.S. Naval Hospital, Bremerton, Wash., won the X-ray quiz which was held at the seminar. The Navy Medical Corps will be host at the next seminar at the U.S. Naval Hospital, Great Lakes, Ill., in 1962.

No Tranquilizers for Flyers. An old, but still pertinent, article in the American Journal of Public Health entitled Tranquilizing Drugs and Stress Tolerance states: "The practice of giving tranquilizing drugs to flying personnel is to be decried. As with all things, the known risk must be weighed against the expected therapeutic benefits, but one would be hard pressed to justify the situation that would require tranquilization and yet allow the airman to continue in a flying status. Tranquilizers do not apparently alter the underlying psychologic or biochemical difficulty, offering only symptomatic relief. If the situation demands tranquilizers, then the airman should—at least temporarily—come off flying status while on the drug." (CAPT R. G. Witwer MC USN)

Surgeon General Commends CAPT Duffner. The Surgeon General, RADM E. C. Kenney MC USN, has awarded the following commendation to CAPT G. J. DUFFNER MC USN, Director of the Submarine and Shipboard Medicine Branch, Research Division, and Director of Submarine Medicine Division, Bureau of Medicine and Surgery:

"I was happy to note the recognition that has been given your excellent article on SCUBA diving which was prepared for the Ciba Clinical Symposia. The fact that the Surgeon General of the Federal German Navy considered it of such excellence and importance that he had it translated into German for the use of his staff and personnel reflects the excellence of the presentation, its importance to submarine medicine, and acknowledges your proficiency as a submarine medical officer. I commend you on this unusual acknowledgement of your ability."

NOTE: The above article of Dr. Duffner's, "Medical Problems Involved in Underwater Compression and Decompression," as referred to, appears in CIBA's CLINICAL SYMPOSIA, Vol. 10, No. 4, July - August 1958. The article contains excellent charts and art work in color by F. Netter M. D.

—Editor

Emergency War Surgery NATO Handbook - Correction in. In one of the printings of the 1958 edition, the charts appearing on pages 4 and 5 are transposed. The correct chart on page 4 should be the chart in which a collecting station is depicted (representing World War II organization) and the correct chart on page 5 should be the chart which depicts no collecting station (representing present organization). (Info from Office, The Surgeon General, U.S. Army)





## OCCUPATIONAL MEDICINE

### Medico-Legal Item: Anxiety Neurosis

An on-the-job injury is compensable under Kentucky law, but what of an anxiety neurosis which develops while the accident victim is being treated for the injury? Is it compensable? A coal miner, was injured while working when a large rock fell on his back. He received workmen's compensation for 24 weeks. He filed an amended application, claiming that he had developed an anxiety neurosis as a result of the accident and hospitalization which required that he wear a full body cast for 20 days. This man had worked regularly prior to his accident, but not afterwards, although he had the opportunity. Testimony indicated that he had become chronically and extremely nervous, melancholic, morbid, and irritable. The company maintained that the State's Workmen's Compensation Act covered accidents and their immediate results, not remote and unconnected results. Further, it argued, this man's nervous condition resulted not from his accident but from his hospitalization. The miner argued that, had it not been for the accident he would not have been hospitalized; also, if he had not been hospitalized he would not be suffering from anxiety neurosis. The court noted that this miner had been a man "strong in body and mind" prior to the accident and was now a broken man mentally as well as physically. It recognized a causal connection between the accident and his present condition. Amended claim allowed. (Industr Hyg Dig, April 1961)

\* \* \* \* \*

### Use of Dihydroxyacetone for Skin Tanning

Within the past year a number of cosmetic preparations have appeared on the market purporting to have a "tanning" effect on the skin. This might be interpreted by the laity as providing protection against sunburning. The experiments of the authors were designed to settle this point. Ultraviolet exposures were administered to test areas on 10 healthy white males. There was no significant difference in erythema response between untreated areas and those previously prepared by the application of dihydroxyacetone lotion. The histologic study of specimens removed from areas similarly treated, some exposed and some not exposed to ultraviolet light, revealed that dihydroxyacetone



lotion had no effect on melanocytes insofar as pigmentogenesis was concerned. (Industr Hyg Dig, July 1961)

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### Sodium Pellets in Benzene Cause Injury

A man recently transferred to a clinical laboratory decided to use benzene from a reagent bottle for cleaning purposes. The bottle was nearly empty and as he poured the benzene over the part to be cleaned a pellet in the bottom of the bottle rolled out and into a wet sink. Immediately, the benzene flared up and severely burned the man's hand.

The laboratory's practice was to keep pellets of sodium in the benzene in order to eliminate the water content. Because the man did not know what the pellets were, he made no attempt to avoid contact with water. Also, he readily admitted that he should not have been using benzene in this manner.

Some of the reactions which could be expected are:



(Univ. of Calif. Information Exchange Bulletin, May 1, 1961)

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### Handling and Use of Teflon Fluorocarbon Resins

Recent inquiries received by the Occupational Health Division of the Bureau of Medicine and Surgery indicate that rumors of a death due to an alleged Teflon exposure are still circulating. It is appropriate at this time to review the toxic properties and control measures necessary for safe handling of Teflon.

The following information extracted from DuPont Bulletin A-20054, April 1961, summarizes the present situation relative to the potential health hazards of Teflon. It should be noted that there are no essential changes in the recommendations in the handling of Teflon from those published in the 23 January 1959 issue of the Medical News Letter. In brief, these are:

- (1) During the machining of Teflon, dust may be generated. Use local



mechanical ventilation to control this dust. The use of a coolant is also recommended because it permits higher cutting or grinding rates and simultaneously keeps the dust concentration to a low level.

(2) If Teflon resins are heated for extended periods in the 400 to 600 F. range, minute quantities of decomposition products are evolved. Therefore, adequate mechanical ventilation should be provided when working with Teflon at temperatures greater than 400 F.

(3) Smoking should be prohibited in areas where Teflon is being fabricated in order to minimize the possibility of contaminating the pipe or cigarette with Teflon dust.

\* \* \* \* \*

#### Patch Testing in Dermatitis from the Newer Resins

Marcus M. Key, Vernon B. Perone, and Donald J. Birmingham, Dermatology Section, Division of Occupational Health, PHS DHEW, Cincinnati, Ohio. J Occup Med 3:361-364, August 1961.

In deciding whether a contact dermatitis is due to an allergen or to a primary irritant, the dermatologist is guided by history of onset and recurrence, reputation of the contactant, and patch test reaction to a nonirritating concentration of the contactant. The gross and microscopic morphology of the lesions are essentially the same and rarely are of practical help in differentiating between the two processes.

This is no less true of those dermatoses being reported from the newer resins, which include the epoxies, polyesters, and polyurethanes. Previous investigators have contributed to our knowledge of patch testing with certain of these newer resins. The growth of the plastics industry is so great, however, that any list of patch test components soon becomes outdated. For its temporary value, the Division of Occupational Health of the Public Health Service has developed patch test concentrations for several of the newer resins and their catalysts. These patch test concentrations were developed not only as a guide for the investigation of occupational dermatoses by the Public Health Service but also as fulfillment of the requests of private dermatologists and industrial physicians.

#### Animal and Human Studies

Twenty-five resin components were screened for irritancy by placing 100%, 10%, 1%, and 0.1% concentrations in nonirritating solvents in open and closed patch tests on the shaved backs of male albino rabbits. One rabbit was used for each component. Occasionally, further dilution was necessary to find one that was nonirritating. In predicting irritation, pH readings as determined by a Beckman pH meter or indicator papers were additional aids.

The next step was application for 24 hours of closed patch tests on human volunteers, using the concentrations which had been nonirritating to



rabbits. As a precautionary measure, each chemical was applied initially to two volunteers and the effect observed before the remainder of the 20 volunteers in each component group were tested. Ideally, 200 or 300 tests should have been made for each component, but this was not practicable. The likely maximum rate of positive reactions which could occur in a large number of tests is 14%, based on no reaction in a sample of 20 subjects. The 119 volunteers participating in the tests were laboratory personnel and college students, ranging in age from 17 to 50 years. Eleven percent were females. Four percent were Negroes.

Patch tests were read at 24, 48, and 72 hours, and 2 weeks after application. Of the more than 600 patch tests applied, only 3 elicited observable reactions, all of them to tertiary amine catalysts used in polyurethane foam production. Recommended patch test concentrations, based on the animal and human studies, are listed in Table I. In Table II, the concentrations of the epoxy resin components are compared to the patch test concentrations used by other investigators.

In addition to knowing recommended patch test concentrations, it would be helpful for a dermatologist investigating an outbreak of dermatitis from resins to know how each of the components affects the skin and how the components are combined to form the cured resin. In the following descriptions of processes, comment will be made on the likelihood of components' sensitization or irritation of the workers' skin.

The combination of components used in curing epoxy resins is summarized in Table III. Contact dermatitis is common in the mixing, pouring, or laminating of epoxy resins and is most frequently caused by primary irritation from the amine hardeners or curing agents, which are also potent sensitizers. Anhydride curing agents are weak irritants and sensitizers. Liquid epoxy resins are moderate irritants and sensitizers. The solid epoxy resins are practically nonirritating but are weak sensitizers. The cured resins are usually inert, unless unreacted components such as amines are released by sawing, drilling, or sanding.

Epoxy resins may be modified with other resins for improved characteristics. Modifiers include polyamides, amino resins, phenolic resins, furanes, and polysulfide liquid polymers. In addition to the dermatitis from the epoxy resins and hardeners, the dermatitis potential of the modifiers must also be considered. Polyamides and polysulfide liquid polymer were weak primary irritants on rabbits, but there are no reports of contact dermatitis from these agents. Uncured amino and phenolic resins and uncured furanes can produce either irritant or allergic contact dermatitis.

Less irritating curing agents have been developed for epoxy resins. These include polyamides, a hydroalkyl substituted aliphatic polyamine, acrylonitrile-amine adducts, and aliphatic amine adducts. Other components of epoxy resins are plasticizers, such as dibutyl phthalate and tricresyl phosphate, and reactive diluents, such as phenyl glycidyl ether, allyl glycidyl ether, butyl glycidyl ether, styrene oxide, acetonitrile, xylene, styrene, and aliphatic diepoxide, many of which are irritants and sensitizers. An epoxy



resin may also contain unreacted epichlorohydrin, an irritant and sensitizer.

### Polyester Resins

Unsaturated polyesters are widely used for reinforced plastics. The polyester monomer is modified with either styrene or methyl methacrylate, and the copolymerization is catalyzed by organic peroxides which are frequently compounded in plasticizers to reduce their explosiveness and flammability (Table IV). Accelerators or promoters are used to facilitate low temperature cures. Standard polyester resin, in addition to polyester and styrene monomers, also contains small amounts of maleic and phthalic anhydride, propylene glycol, tertiary butyl catechol, and hydroquinone. The glass fiber used to reinforce polyester resins is chemically inert but physically irritates the skin with its sharp spicules. Dermatitis is occasionally encountered in polyester compounding and is usually caused by primary irritation by the components, all of which are primary irritants. Allergic hypersensitivity has been reported from polyester monomer, styrene, cobalt naphthenate, benzoyl peroxide, cyclohexanone peroxide, methyl ethyl ketone peroxide, tricresyl phosphate, and dibutyl phthalate.

### Polyurethane Resins

Polyurethane or isocyanate resins find their main use in rigid, semirigid, and flexible foams, but are also used for coatings and adhesives. Polyurethane resins are made by reacting a diisocyanate, usually toluene diisocyanate or diphenylmethane diisocyanate, with polyols, such as glycols, polyesters, or polyethers. A prepolymer is a partially reacted mixture of polyester resin and diisocyanate. The catalyst employed in this reaction may be an organotin, cobalt naphthenate, or a tertiary amine, such as diethylethanolamine, methyl morpholine, ethyl morpholine, and triethylenediamine. Some of the tertiary amines are highly alkaline and irritating to the skin, but dermatitis in polyurethane production is rare. This is probably due to the precautions that are taken to prevent pulmonary irritation and sensitization from toluene diisocyanate, which may also irritate and sensitize the skin.

### Comment

Although some of the cases of occupational dermatitis from handling the newer resins have been based on allergic hypersensitivity, the majority of the cases have been due to contact with primary irritants, such as the amines, and/or to repeated contact with low-grade irritants such as solvents and abrasive cleansers. Low-grade irritation is frequently confused with allergic hypersensitivity because both have delayed onsets. It is hoped that this reasonably current list of patch test concentrations not only will aid in separating allergic hypersensitivity from primary and low-grade irritation but also will help to prevent injury to the patient from irritant patch tests.



## Summary

Contact dermatitis occurs frequently from epoxy resin components, occasionally from polyester resin components, and rarely from polyurethane resin components. As a diagnostic aid in distinguishing between allergic and primary irritant dermatitis, the Division of Occupational Health of the U. S. Public Health Service has recommended nonirritating patch testing concentrations and diluents for components of epoxy, polyester, and polyurethane resins. These concentrations were derived by first patch testing rabbits and later, 20 human volunteers for each resin component.

Table I — Recommended Patch Test Concentrations

## Epoxy Resin Components

|  |            |
|--|------------|
| 1. Epon 828 (low molecular weight epoxy resin)         | 1% MEK     |
| 2. Araldite 502 (low molecular weight epoxy resin)     | 0.1% acet. |
| 3. Epon 1001 (high molecular weight epoxy resin)       | 10% acet.  |
| 4. Araldite 6060 (high molecular weight epoxy resin)   | 10% acet.  |
| 5. Diethylenetriamine (aliphatic polyamine hardener)   | 0.05% aq.  |
| 6. Triethylenetetramine (aliphatic polyamine hardener) | 0.1% aq.   |
| 7. Metaphenylenediamine (aromatic amine hardener)      | 10% aq.    |
| 8. Versamid 115 (polyamide resin hardener)             | 1% alc.    |
| 9. Phthalic anhydride                                  | 1% alc.    |
| 10. Maleic anhydride                                   | 1% aq.     |

## Epoxy Resin Modifiers

|   |           |
|---|-----------|
| 11. Furane resin X-2  | 0.05% MEK |
| 12. Furane acid catalyst Z-1-A                                  | 0.05% aq. |
| 13. Thiokol liquid polymer LP-3<br>(polysulfide liquid polymer) | 1% acet.  |

## Polyester Resin Components

|  |              |
|--|--------------|
| 14. Polyester monomer  | 10% acet.    |
| 15. Styrene  | 1% o. o.     |
| 16. Dimethyl aniline (percutaneous absorption may<br>produce systemic effects) | 10% alc.     |
| 17. Benzoyl peroxide   | 0.1% styrene |

## Polyurethane Resin Components

|   |         |
|---|---------|
| 18. Righthane 112 (resin prepolymer)                          | 1% alc. |
| 19. Righthane catalyst C-112-R2                               | 10% aq. |
| 20. Solithane 113 (resin prepolymer)                          | 1% alc. |
| 21. Solithane catalyst C-113-300<br>(tertiary amine catalyst) | 1% alc. |
| 22. Solithane catalyst C-113-328<br>(tertiary amine catalyst) | 10% aq. |



## Polyurethane Resin Components (continued)

|   |           |
|---|-----------|
| 23. Diethylethanolamine (tertiary amine catalyst) | 0.05% aq. |
| 24. Methyl morpholine (tertiary amine catalyst)   | 0.1% aq.  |
| 25. Triethylenediamine (tertiary amine catalyst)  | 0.1% aq.  |

Explanation of abbreviations: acet. = acetone; alc. = alcohol; aq. = aqueous; c. o. = castor oil; MEK = methyl ethyl ketone; o. o. = olive oil; pet. = petrolatum.

Table II — Patch Test Concentrations for Epoxy Resin Components According to Various Investigators

| <u>Epoxy Resins</u> | <u>Amine Hardeners</u>               | <u>Investigators</u>           |
|---------------------|--------------------------------------|--------------------------------|
| 20% c. o.           | 20% c. o.                            | Savitt                         |
| 50%-70% acet.       | 0.25%-10% alc.<br>and other diluents | Malten                         |
| 1% o. o.            | 1% o. o.                             | Gaul                           |
| 0.01%-0.1%          | 0.1%                                 | Hine and others                |
| 10% liquid pet.     | 10% liquid pet.                      | Lea, Block,<br>and Cornish     |
| 50% acet.           | 0.1% acet.                           | Blaney                         |
| 1%                  | 1%                                   | Fisher                         |
| 1%-10% act.         | 0.05%-10% aq.                        | Key, Perone, and<br>Birmingham |

Table III — Epoxy Resin Components

| <u>Lower Molecular Weight<br/>Epoxy Resins</u>                           | <u>Higher Molecular Weight<br/>Epoxy Resins</u>                       |
|--|---|
| Liquids  | Solids  |
| Used without solvents  | Used with solvents:<br>Ketones, aromatic or<br>aliphatic hydrocarbons |
| Used for casting, potting,<br>laminating, adhesives, dies,<br>and models | Used for coatings   |
| Cured by aliphatic or<br>aromatic amines                                 | Cured by acid anhydrides  |
| Irritating properties<br>inverse to molecular weight                     | Little or no dermatitis -<br>producing potentialities                 |

The catalysts, plasticizers, and accelerators for polyester resin components are listed in table IV.



Table IV — Polyester Resin Components

| <u>Catalysts</u>             | <u>Plasticizers</u> | <u>Accelerators</u>   |
|------------------------------|---------------------|-----------------------|
| Methyl ethyl ketone peroxide | Tricresyl phosphate | Cobalt naphthenate    |
| Cumene hydroperoxide         | Dibutyl phthalate   | Manganese naphthenate |
| Benzoyl peroxide             |                     | Diethyl aniline       |
| Lauroyl peroxide             |                     | Dimethyl aniline      |
| 2,4-Dichlorobenzoyl peroxide |                     | Quaternary amines     |
| p-Chlorobenzoyl peroxide     |                     | Dodecyl mercaptan     |
| Succinic acid peroxide       |                     | Mercaptoethanol       |
| Hydroxyheptyl peroxide       |                     |                       |
| Di-t-butyl diperphthalate    |                     |                       |
| t-Butyl perbenzoate          |                     |                       |
| t-Butyl hydroperoxide        |                     |                       |

\* \* \* \* \*

Pitch Fume Exposure Causes Disabling Injuries

Hazards Control, University of California Information Exchange Bulletin,  
Lawrence Radiation Laboratory, Vol. I, No. 8, August 1961.

According to the Nuclear Reactor Test Site, Health and Safety, Idaho Operations Office:

"Three disabling injuries from coal-tar-pitch fumes recently occurred on a construction job during application of a coal-tar-pitch roof.

Personnel started work at 8:00 a.m. without benefit of eye protection or skin cream. By 10:00 a.m. 4 of the 5-man crew were experiencing facial burning, swelling, and eye discomfort. From this time on, about once an hour, the 4 afflicted men shared anesthetic prescription eye drops which a worker, who had been previously affected, had brought to the job.

Work was stopped earlier than usual that afternoon when the eye drops were used up and personnel discomfort became acute. The doctor was phoned on arrival in town and eye drops were prescribed for all men pending an office visit the next morning, at which time 3 of the 4 men were hospitalized for treatment of corneal ulceration and facial burns.

### Conclusions and Recommendations

Heated coal-tar-pitch creates greater hazards to the worker than asphalts; hence, every consideration should be given to the use of asphalts where possible as a roofing medium.

The skin of workers reacts differently to pitch fumes under similar exposure conditions. Reaction is definitely more significant on sunny days due to a photosensitizing effect. The use of skin creams will merely lessen the



severity of skin burns and should not be used as a substitute for cover clothing. Eye reaction to pitch fumes is a most serious consideration, and since working conditions cannot be particularly controlled as to sun, wind, etc., full-face type masks should be minimum protection adequate for all working conditions. Such masks should have charcoal-type filters to also provide respiratory protection.

Of particular significance in these cases was the use of anesthetic eye drops during the course of work, which lulled the normal human defenses and permitted eye injury beyond that of normal tolerance. This condition could occur in welding and other locations as well; hence, the use of anesthetic eye drops should be prohibited during the course of any work without special eye protection and medical supervision. "

\* \* \* \* \*

DENTAL



SECTION

Mechanical Failure of Amalgam  
Restorations with and without Cement Bases

David C. Hoppenstad and Duncan McConnell, College of Dentistry, Ohio State University, Columbus, Ohio. J Dent Res 39:899-905, Sept. - Oct. 1960. Dental Abstracts, August 1961.

Laboratory models of Ivorine teeth containing both deep and shallow cavity preparations received restorations (1) with amalgam alone, (2) with underbases of zinc oxide-eugenol, and (3) with underbases of zinc phosphate cement. Below the underbase in the shallow cavity was a small hemispherical excavation. In the deep cavity the base formed a continuous layer under the amalgam restoration. Test loads were applied to the amalgam restorations by means of a one-eighth inch steel ball that could be seated accurately in two intersecting channels (central fossa) on the occlusal surface. The testing was done to determine the point of failure of the fillings with underbase materials.

No significant differences were noted between the amalgam filling alone and the amalgam filling placed above zinc phosphate cement in shallow cavities. Amalgam restorations with underbases of zinc oxide-eugenol failed under relatively small loads in deep cavities. With increased depth of the cavity preparation, a general decline in strength of the models was observed, even with amalgam alone. This decline was extreme with zinc oxide-eugenol as a base material.



Personnel and Professional Notes

Naval Dental Corps Officers at ADA Meeting. RADM C. W. Schantz DC USN, Assistant Chief of the Bureau of Medicine and Surgery (Dentistry), and Chief, Dental Division, represented the Surgeon General and served as the Navy's delegate in the House of Delegates at the 102nd Annual Meeting of the American Dental Association held 16-19 October 1961, in Philadelphia, Pa. CAPT R. S. Snyder Jr., DC USN, Assistant Chief of the Dental Division, Bureau of Medicine and Surgery, attended the meeting as the Navy's alternate delegate. RADM E. G. F. Pollard DC USN, Director of Dental Activities, Fifth Naval District, attended the meeting and participated in the Naval Reserve Officers' Seminar conducted in conjunction with this annual meeting.

At the meeting the Dental Corps' new exhibit, U. S. Naval Dental Corps Supports the Fleet, was displayed. In addition, two new Dental Corps motion pictures were shown, The Dental Assistant, Operative, and Oral Hygiene, U. S. Navy. The following officers participated in the scientific portion of the meeting:

CAPT Donald E. Cooksey DC USN, Diplomate, American Board of Oral Surgery, participated in panel discussion, Complication of the Maxillary Sinus.

CAPT Theodore R. Hunley DC USN, projected clinical lecture, Reproduction of Anatomic Contours in Amalgam.

CAPT Robert B. Lytle DC USN, Diplomate, American Board of Prosthodontics, presented essay, Mouth Preparation before Denture Construction.

The American Prosthodontic Society, formerly the American Denture Society, was represented by CAPT John F. Bowman DC USN, Diplomate, American Board of Prosthodontics who presented a slide illustrated table clinic assisted by LT D. J. Dominic DC USN. CAPT Bowman was also a Presiding Chairman during the meeting.

CAPT Walter J. Demer DC USN, Diplomate, American Board of Prosthodontics presented a table clinic, Use of the Bar Bridge for Partial Denture Support.

CAPT Edward A. Gargiulo DC USN, Diplomate, American Board of Oral Surgery presented an essay, A Programme of Bone Preservation During Oral Surgery for Future Prosthesis.

American Academy of Gold Foil Operators - CAPT Robert B. Wolcott DC USN, President of the American Academy of Gold Foil Operators presided over the annual meeting.

CAPT Norwood E. Lyons DC USNR appeared as a clinician.

Navy Dental Officers Appear at Meeting. CAPT James F. Pennington DC USN and CDR Lloyd M. Armstrong DC USN appeared before the Shenandoah Valley Dental Meeting held 6 October 1961, in Waynesboro, Va. Both Dental officers presented a lecture in the field of Operative Dentistry. CAPT Pennington and



CDR Armstrong are on the staff of the U. S. Naval Dental School, National Naval Medical Center, Bethesda, Md.

Camp Lejeune Dental Society Meets. The Second Dental Company, Second Marine Division, was host for the first of the Fall meetings of the Camp Lejeune Dental Society at the Paradise Point Officers' Club on 27 September 1961.

CAPT Raymond F. Huebsch DC USN, Diplomate, American Board of Oral Surgery, presented an illustrated lecture on The Treatment of Acquired and Developmental Defects of the Mandible. The meeting was attended by 62 Dental officers from local and nearby Dental activities as well as 13 civilian dentists.

CAPT Flocken Presents Lecture. While in a recent leave status in Europe, CAPT J. E. Flocken DC USN presented lectures entitled The Dowel Abutment Preparation and Impression Techniques for Fixed Prosthodontics at the Dental Facilities, Naval Base, Headquarters, Amsterdam, Netherlands, and at the Royal Dental College of Copenhagen, Copenhagen, Denmark.

CAPT Flocken is currently assigned to the Crown and Bridge Division, U. S. Naval Dental School, National Naval Medical Center, Bethesda, Md.

Appointments in the Dental Corps, USN. The Dental officers listed below who applied for appointment in the Dental Corps, U. S. Navy, have been considered by a Naval Examining Board and appointed in the grade indicated. The board was convened in the Bureau of Medicine and Surgery by RADM C. W. Schantz DC USN, Assistant Chief of the Bureau of Medicine and Surgery (Dentistry), and Chief, Dental Division:

Lieutenant Commander

Chutter, Reinald J.  
Kelley, William P.  
Kawashima, Zitsuo  
Little, Earl E., Jr.  
Orrahood, Robert H.  
Taylor, "B" Frank  
Whatley, Thomas L.

Lieutenant

Albers, Delmar D.  
Anderson, Dale M.  
Anderson, John W. R.  
Annis, Robert B.  
Ballard, Gerald T.  
Baumgarten, Richard S.

Lieutenant (contd.)

Brown, Max W.  
Courtney, Richard M.  
Hedge, Herbert R.  
Henry, William H.  
Hube, Albert R.  
Krezeminski, Arthur E.  
Lehman, Ralph N.  
Maw, Ralph B.  
Parker, Irwin J.  
Pike, Robert E.  
Rogers, John D.  
Scott, Gale L.  
Shelin, Robert A.  
Short, George A.  
Sparks, Grady L.  
Stevens, Mark M.



Lieutenant (Contd.)

Thornton, Robert D.  
Toth, Wayne J.  
Viles, Darel D.

White, Warne H.  
Williams, John E., Jr.  
Williams, Robert E., Jr.

Naval Dental Corps Continuing Education Program. A postgraduate course in Removable Partial Dentures will be conducted 8-12 January 1962, at the U.S. Naval Dental School, NNMC, Bethesda, Md. This course is intended as a refresher in the basic principles of design of the removable partial denture. Emphasis will be placed on mouth preparation, making accurate impressions, studying survey and design, recording maxillomandibular relationships, and patient education. The course will consist of lectures, demonstrations, a seminar, and individual supervision of limited exercises.

CDR E. J. Kratochvil DC USN, Diplomate, American Board of Prosthodontics, will be the instructor. Quotas for the course have been assigned to the following naval districts and commands: ComOne, ComThree, ComFour, ComFive, ComSix, ComNine, PRNC, SRNC, and CNATRA. Applications should be received in the Bureau as early as possible and not less than 4 weeks prior to commencement of the course. The Bureau Professional Advisory Board will make recommendations on all requests, and upon approval by the Surgeon General, applicants will be notified as to the final action. Those approved will be nominated for TAD or authorization orders, as appropriate. Accounting data will be forwarded to individual officers nominated for TAD orders.

DR. Waggener Lectures at NDS. Dr. Donald T. Waggener, Professor and Chairman, Department of Pathology, College of Dentistry, and Associate Professor of Surgery, College of Medicine, University of Nebraska, lectured on Oral Roentgenographic Interpretation to staff, resident and postgraduate dental officers, and civilian and military guests, at the U.S. Naval Dental School, NNMC, Bethesda, Md., on 12 October 1961. The program was televised from the National Naval Medical Center by closed circuit to other federal medical and dental activities in the local area.

Dr. Waggener holds a Fellowship in Oral Surgery from the Mayo Clinic. He is presently serving as President of the American Academy of Oral Roentgenology. He has also served as Chairman of the Cancer Coordinators of Dental Schools of the United States.

CAPT Broesamle to Appear at Meeting. CAPT Kenneth Broesamle DC USN, Senior Dental Officer, U. S. Naval Training Center, San Diego, Calif., will appear at the V Odontological Congress of the Federacion Odontologica de Centro America y Panama, to be held in Panama, Republic of Panama 21-26 January 1962. Other American essayists expected to participate in the scientific program include Drs. Irving Glickman, Boston, Mass.; Jose Medina, Baltimore, Md.; James Bush, Iowa City, Iowa; Robert B. Shira, Washington, D. C.; Joseph Bernier, Washington, D. C.; and Louis A Cohn, New York, N. Y.



CAPT Hoyt Retires. CAPT Charles F. Hoyt DC USN was recently placed on the retired list of the Navy after more than 31 years of active naval service. He was born in Spokane, Wash., and graduated from the Dental School, North Pacific College of Oregon, in 1927. After conducting a private practice in Seattle, Wash., for 2 years, CAPT Hoyt reported to the U. S. Naval Training Center, San Diego, Calif., in August 1929 for his first tour of active service. He received extensive postgraduate training at various universities under the Bureau of Medicine and Surgery's Continuous Education Program, and received further training in Oral Malignancies at Memorial Hospital in New York.

As Chief of Dental Service at the U. S. Naval Hospital, Philadelphia, Pa. and St. Albans, N. Y., he made outstanding contributions in the Naval Dental Corps hospital training program. In 1955, he served as President of the Metropolitan (New York) conference of Hospital Dental Chiefs.

Prior to his retirement, CAPT Hoyt was on duty as the Senior Dental Officer at the U. S. Naval Station, Key West, Fla. He is presently engaged in private practice in Miami, Fla.

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## RESERVE



## SECTION

You'll Find Answers to Naval Reserve  
Career Questions in References and Directives  
(continued from last issue)

### Subject

### Pertinent Reference

#### Retirement

Nondisability retirement with pay  
Transfer to the Retired Reserve without pay  
Contingency Option Act of 1953

BuPers Instr. 1820.1B.  
BuPers Instr. 1820.2A  
BuPers Instr. 1750.1C; The  
Naval Reservist, January 1960.

Roundup of retirement information; retirement pay chart

The Naval Reservist, November 1959.

#### TAR Program

Naval Reserve officers on active duty in connection with the TAR program

BuPers Instr. 1001.10D.



SubjectPertinent ReferenceTAR Program (Contd.)

TAR billet opportunities for Reserve officers  
on inactive duty

BuPers Instr. 1331.4B; The  
Naval Reservist, January 1960.

Active duty of enlisted USNR personnel in  
connection with the Naval Air Reserve  
TAR Program

BuPers Instr. 1001.7B.

Training

Catalog of available ACDUTRA  
Assignment and termination policies for the  
Naval Air Reserve  
Information and policies regarding women in  
the Naval Reserve on inactive duty  
Promotional requirements for assignment to,  
or retention in, the Selected Reserve

BuPers Instr. 1571.4G.

BuPers Instr. 1301.5E.

BuPers Instr. 1001.2A.

BuPers Instr. 1321.3B.

Correspondence Courses

List of Training Manuals and Correspond-  
ence Courses

Enlisted Correspondence Course Roundup

Officer Correspondence Course Roundup

NavPers 10061-M

The Naval Reservist, January,  
1961.

The Naval Reservist, August  
1960.

Augmentation

Regular Navy Augmentation Program

BuPers Instr. 1120.12H.

Active Duty; Recall

Active Duty Agreements for USNR officers  
Voluntary recall to active duty of USNR  
officers  
Recall policy

BuPers Instr. 1120.22C.

BuPers Instr. 1331.4B.

BuPers Instr. 1001.15B.

Selective Service; Reserve Obligations

Six-year obligation under the Armed Forces  
Reserve Act of 1955

The Naval Reservist, October  
1955.



| <u>Subject</u>  | <u>Pertinent Reference</u>                                |
|---|---|
| <u>Selective Service; Reserve Obligations (Contd.)</u>  |   |
| Screening Ready Reserve officers  | The Naval Reservist, September 1956.                      |
| Screening enlisted members of the Ready Reserve   | BuPers Instr. 1001.6C; The Naval Reservist, October 1956. |
| <u>Benefits; Privileges</u>   |   |
| Regulations governing furnishing of clothing in kind or cash allowances to enlisted Reservists on inactive duty | BuPers Instr. 1020.4B.                                    |
| State Veterans' Bonus Roundup   | The Naval Reservist, September 1960.                      |

From The Naval Reservist, September 1961

\* \* \* \* \*

#### New Training Films

Three new films produced by the Bureau of Medicine and Surgery were recently made available at training aid centers and libraries. These films are:

##### MN-9419 Radiation Protection in Nuclear Medicine

16mm motion picture - color, sound, 45 minutes, 1961

Demonstrates procedures, special techniques, and equipment used in hospitals to protect against the gamma radiation emitted from materials used in radiation therapy.

##### MN-9465 Emergency Childbirth

16mm motion picture - color, sound, 21 minutes, 1961

This film is designed to prepare corpsmen psychologically and technically to render necessary assistance in the emergency delivery of a baby. It presents: the indications when delivery is too imminent to risk transportation to a hospital, the detailed procedures to follow, cautions to be observed in the actual delivery, and the care of mother and baby immediately following delivery. This film is available only from the Chief, Bureau of Medicine and Surgery, USN, Washington, D. C., for approved use upon request by a Medical officer.

##### MN-9479 Preventive Psychiatry - In or Out?

16mm motion picture - black and white, sound, 57 minutes, 1961

A realistic documentary of the psychiatric selection program that has been operating in U. S. Naval Training Centers and Marine Corps Recruit Depots since 1940. Shows, generally, personality problems and character disorders of recruits which are brought into sharp focus by the stress of the military environment. Depicts the major aspects of the naval psychiatric



selection program, including short-term therapy to assist recruits who are experiencing situational difficulties.

\* \* \* \* \*

Partial Mobilization Underway;  
USNR Units, Men Ordered to AcDu

The Naval Reservist - NavPers 15653 - October 1961.

The Secretary of Defense, with the approval of the President, has called up certain Reserve units in all branches of the Armed Forces.

The Naval Reserve's share in strengthening the Fleet to meet the current international situation constitutes a significant increase in the Navy's antisubmarine warfare forces.

Forty Selected Reserve training ships and 18 Naval Air Reserve ASW squadrons have been ordered to join the Fleet. The surface units include 13 destroyers, 27 destroyer escorts and their Reserve Crews. The aviation units consist of 5 patrol squadrons (VP), flying P2V Neptunes, and 13 ASW squadrons (VS), assigned S2F Trackers.

Seven of the ships are being overhauled, and personnel for these ships will not be called until ship overhauls are nearly complete.

Because the Naval Air Reserve squadrons are approximately half the personnel strength of Fleet squadrons of similar type, Reservists now assigned to squadrons being called up will be augmented by other Naval Air Reservists in the Selected Reserve. These Reservists will be chosen by CNARESTRA. In addition, a small number of men—in ratings, not included in training squadrons but needed in Fleet squadrons—will be ordered from the Selected Reserve active status pools maintained by district commandants. These ratings include photographic intelligence men (PT), boatswain's mates (BM), disbursing clerks (DK), cooks (CS), and stewards (SD).

Following is the list, by Naval District, of the ships and squadrons ordered to active duty. The ships marked with an asterisk (\*) are being overhauled, and are slated to report on 1 November.

ComOne

USS Miller (DD 535)  
\*USS Parle (DE 708)  
USS Tills (DE 748)  
VS-915

ComThree

\*USS Hood (DD 655)  
\*USS Remey (DD 688)  
USS DeLong (DE 684)  
USS Thaddeus Parker (DE 369)

ComThree (Contd.)

USS Albert T. Harris (DE 447)  
USS Coates (DE 685)  
VP-832  
VS-837  
VS-751

ComFour

USS McNair (DD 679)  
USS Kidd (DD 661)  
USS J. Douglas Blackwood (DE 219)



## ComFour (Contd. )

USS Snowden (DE 246)  
VP-933  
VS-935

## ComFive

\*USS Bearss (DD 654)  
USS Roberts (DE 749)  
USS Loeser (DE 680)  
USS Robert F. Keller (DE 419)  
USS Darby (DE 218)  
VP-661  
VS-861

## ComSix

\*USS Hunt (DD 674)  
USS Robinson (DD 562)  
USS Greenwood (DE 679)  
USS Tweedy (DE 532)  
VP-741

## ComEight

\*USS Wren (DD 568)  
\*USS Huse (DE 145)  
USS Crow (DE 252)  
USS Woodson (DE 359)  
VS-821

## ComNine

USS Daniel A. Joy (DE 585)  
VS-721  
VS-733

## ComEleven

USS Tingey (DD 539)  
USS Colahan (DD 658)  
USS Marsh (DE 699)  
USS Vammen (DE 644)  
USS Wiseman (DE 667)  
VP-872  
VS-771  
VS-772  
VS-872  
VS-873

## ComTwelve

USS Laws (DD 558)  
USS Walton (DE 361)  
USS Edmonds (DE 406)  
USS Alvin C. Cockrell (DE 366)

## ComThirteen

USS Watts (DD 567)  
USS Whitehurst (DE 634)  
USS Charles E. Brannon (DE 446)  
USS McGinty (DE 365)  
VS-891

\* \* \* \* \*

Commandants Must Be Notified of  
Change of Mailing Address

Whenever you move or change your mailing address, you are required to notify the holder of your official naval records of your new address.

Report address changes as follows:

Officers: To commandant holding your records. If affiliated with a pay unit, submit report via your unit commanding officer.

Enlisted: To your commanding officer, when affiliated with a pay unit. To commandant holding your records if you are not a member of a drill pay unit.

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Naval Medical Research Reports

U. S. Naval Medical Research Institute, NNMC, Bethesda, Md.

1. The Metabolism of B Hydroxybutyrate and Acetoacetate by Excised Rat Diaphragm and Diaphragm Homogenate. MR 005.12-1100.02 Report No.10, 30 September 1960.
2. Further Studies on the Exogenous Development of Malaria in the Haemo-coels of Mosquitoes. NM 005 048.20.03, 30 September 1960.
3. Experimental Infection of Aedes Aegypti with Exoerythrocytic Stages of Plasmodium Gallinaceum. NM 005 048.20.04, 30 September 1960.
4. Spectrophotometric Determination of Blood pH. MR 005.06-0040.02 Report No. 1, 30 September 1960.
5. Effect of Phosphorylated Hesperidin and Hyaluronidase on the Rate of Erythrocyte Removal from the Peritoneal Cavity of Rats. MR 005.03-0001.03 Report No. 4, 30 September 1960.
6. Chromatographic Analysis of Secretions from the Acetabular Glands of Cercariae of Schistosoma Mansoni. MR 005.09-1031.01, Report No. 9, 22 October 1960.
7. Strength of Histocompatibility Genes. MR 005.02-0001.03 Report No. 6, 22 October 1960.
8. Biological Properties of Weak Histocompatibility Genes. MR 005.02-0001.03 Report No. 5, 22 October 1960
9. Electrophysiological Evidence for a Mechanism of Color Vision in the Goldfish. MR 005.03-1001.02 Report No. 3, 22 October 1960.
10. Pharmacological Studies on Irradiated Animals. X. Effects of Cell-Free Spleen Extract Treatment on Hematopoietic Tissues of Irradiated Guinea Pigs. MR 005.08-1300.03 Report No. 5, 4 November 1960.
11. Further Observations on Ketone Body and Fatty Acid Oxidation by Diaphragm from Normal Rats Fasted in a Cold Environment. MR 005.12-1100.02 Report No. 11, 4 November 1960.
12. Cultivation of Dengue-1 (Hawaiian) Virus in Tissue Culture. II. Fluorescent Staining of Human Skin Cells Infected with Dengue-1 Virus. MR 005.09-1200.01 Report No. 3, 4 November 1960.
13. Cultivation of Dengue-1 (Hawaiian) Virus in Tissue Culture. III. Cytopathogenic Virus Subcultured from HuS 2806-Dengue-1 Carrier Culture. MR 005.09-1200.01 Report No. 4, 4 November 1960.
14. Properties of Thyroglobulin. VI. The Internal Rigidity of Native and Denatured Thyroglobulin. MR 005.06-0001.01 Report No. 13, 4 November 1960.
15. Copolymers of Adenylic Acid with Inosinic and Cytidylic Acid. MR 005.06-0001.01 Report No. 14, 4 November 1960.
16. Growth of the Eaton Agent of Primary Atypical Pneumonia in Chick Entodermal Tissue Culture. MR 005.09-1200.03 Report No. 3, 4 November 1960.
17. Effect of Some Krebs Cycle Inhibitors and Intermediates on Shigella Infections in Mice. MR 005.09-1100.01 Report No. 5, 4 November 1960



18. Effect of Intermittent Cardiac Ischemia on Myocardial Oxygen Availability and Left Ventricular Function. MR 005.12-0002.04 Report No. 6, 4 November 1960.
19. Influence of Various Metabolites on the Growth of Coxiella Burnetii in Monolayer Cultures of Chick Embryo Entodermal Cells. MR 005.09-1200.04 Report No. 1, 21 November 1960.
20. Comparison of Mating and Biting Behavior in Two Laboratory Strains of Anopheles Quadrimaculatus Say. MR 005.09-1401.01 Report No. 5, 15 December 1960.
21. Epidemiology and Prevention of Bacillary Dysentery. Lecture and Review Series No. 60-8, 16 December 1960.
22. Further Toxicological Properties of Aromatic Esters in the Tropine and Pseudo-Tropine Series. MR 005.06-0010.01 Report No. 20, 16 December 1960.
23. Receptive Fields of Retinal Ganglion Cells. MR 005.03-1001.02 Report No. 5, 19 December 1960.
24. Origin of "On" and "Off" Responses of Retinal Ganglion Cells. MR 005.03-1001.02 Report No. 4, 19 December 1960.
25. Some Toxicologic Properties of the Alkaloids Galanthamine and Securinine. MR 005.06-0010.01 Report No. 21, 21 December 1960.

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DEPARTMENT OF THE NAVY

U. S. NAVAL MEDICAL SCHOOL

NATIONAL NAVAL MEDICAL CENTER

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